



March 1983

SPARKS

Tri-State Amateur Radio Society

EVANSVILLE, INDIANA



OFFICERS:

Pres: John Small W9FHA
V.P.: Jim Shoptaugh KA9KRE
Sec: Elvin Reed WB9VSQ
Tres: Blanche Elpers KA9EIV

DIRECTORS:

Harold Muensterman N9DEO
Michael Knott N9DEV
Charles Fink WB9NQD
William Spencer WD9HUK
Al Wilber W9BPE
Dallas Fickas WB9TKM

EDITOR: Mike Anderson KA9LQM
476-5572

"BUT HOW DO I GIVE MY
GRID LOCATOR AT THE
NORTH POLE?"



thanks to OH5YW and Radioamatoori

To exchange grid-square information, you must first identify your own grid square. That is the easy part. Your $2^{\circ} \times 1^{\circ}$ grid locator (70 miles x 100 mi) is indicated by just two letters (the field) and two numbers (the square). For most of North America the first two can be read directly off of the map on page 4. For the 3rd & 4th, you convert your Longitude & Latitude

For Evansville, Indiana
Longitude is $87^{\circ} 34.5'$ West
Latitude is $37^{\circ} 58.2'$ North

* TARS regular monthly meetings are held at the corner of Diamond and Heidelbach Avenues at the RED CROSS building.
* Monthly meetings are held the second Thursday of the month at 7:30 PM
* The officers and directors meetings will be held on the third Thursday
* at 7:00 PM at the RED CROSS building.
*
* The Tri-State Emergency Net meets each Wednesday at 8:00 PM local
* time on the W9OG repeater. 147.75 - 15

from: TO:

Mike Anderson
Post Office Box 3284
Evansville, IN 47732

If you have questions about SPARKS or an article for it please contact the editor.

Hamfest

MAY 15th.

This time next month the Hamfest committee's will be in full swing and looking for the large number of volunteers that will be needed to sell tickets, cook, sell food, and the other 1,001 things that need to be done the day of the hamfest. You will thank Hal (WB9FNN) for keeping you working and will miss the one bargain of a lifetime on the 3 ton 687 Volt 500 cycle AM transmitter which will undoubtably be for sale in the Flea Market Area. All kidding asside we need all the help Hamfest Day but much of the work will have to be done weeks ahead. You will have lots of free time to get the bargains and still help TARS and yourself. (The Hamfest is our largest money maker and supports the repeaters and other club functions).

Now is the time to mark Sunday, May 15, 1983 on the calendar for the HAMFEST. If you would like to be on any of the Hamfest Committees give Hal Wilson a Call (WB9FNN) or Phone 867-3151 to donate your time or services to the Hamfest. Will announce the Grand Prizes in the April issue of sparks.

DID YOU GOOF!

Look closely at the mailing label on this issue of Sparks. If you see a number such as 001 on the first line you have just been automatically entered in a contest.

However if the first line of your address label looks like a strange bird walked on it.

Name /Call

Address

City State & Zip Code

The line of *** is not the pay-off on a slot machine. It means that your dues were not paid as of February 15, 1983. It also means you will not receive the April issue of Sparks. THIS IS NOT AN APRIL FOOL JOKE! so send your check to Blanche 840 Herndon, Evansville, IN 47711 so she can call my computer off before your name is removed from the data banks.

Now for you lucky people who have your permanent lucky number. Starting with the April, 1983 meeting I will have 1 door prize to give away at every meeting. There is one catch to this April Fool Prize and the prizes which follow. You must be at the meeting when your number is drawn. If the lucky person is not there I will draw numbers until a winner is drawn. 73's Mike (KA9LQM)

small talk

The gloomy days of winter are coming to an end and the outdoor activities are increasing. I find myself on the air less and out of doors more of the time.

Field Day, The Freedom Festival Parade, Thunder on the Ohio and the severe weather net will consume many hours this summer. As always we need people to organize these events and the support of everyone to keep them going.

The Novice & General classes being taught by Bob Bengert are well attended. The new hams will need your help to get on the air. Operating procedures, antenna selection and obtaining a rig are crucial problems for all new hams, (and not-so-new hams). Do your part to assist them with this great hobby of ours.

I thought the February issue of Sparks was great!. If you feel the same way, let Mike (KA9LQM) know about it. Your articles and pictures would be welcome additions to the paper. Guess that is enough chatter from me. I must get outside and check the antennas for winter storm damage. (The 20 meter beam will not turn) If you have similar plans, use the Clubs' climbing belt and be safe. Contact Jim (KA9KRE) to borrow the belt.

73's
W9FHA

The March meeting will be a slide show from S.I.G. & E. Co. featuring some of the damage in the June Storm of last year. It proved how valuable the 2 meter repeaters and Weather Nets could be in an actual emergency. The storms taught all of us many lessons.

INCERT

With the arrival of Spring comes the updating of the list of TARS members who are also in INCERT. Blanche has the forms which need updating. See her at the next meeting or give her a call to be sure your INCERT information is current.

Also anyone wanting to join INCERT (Indiana Council of Emergency Response Teams) can get the necessary info from Blanche (KA9EIV) or John (W9FHA)

NO-CODE

Here are the details of the no-code NFRM: P.R. Docket 83-28 contains two options. The first would delete the telegraphy requirement from the current Tech. Class Exam. This new license would permit those passing Element Two of the FCC Examination the same privileges now enjoyed by Amateurs passing a 5 wpm code test, except for A-1 operation on the Novice C.W. Bands. Tech. Class linensees who have already passed a 5wpm code test would not lose those privileges, and new NO - CODE Technicians could use the Novice CW Bands by proving their code proficiency to a local ham. No documentation of this latter ability would need to be provided the FCC. Permitted operation of the NO CODE licence would be on all bands above 50 Mhz and would include all modes which are now allowed the Tech. Class.

A second option is the so called "Experimenter Class" and would permit various forms of digital communications on all bands above 144 Mhz. The FCC reserves the right to permit this class licensee to operate as low as 50 Mhz. The FCC has proposed adding a new element 5 to the present examination and has requested input from the Amateur community as to the difficulty level to be used. Neither NO CODE option would permit any operating priveleges below 30 MHz. in accordance with international treaty (with the exception of the 5wpm proof of performance requirement above)

Editors Note: See the April issue of QST for more details on the NO-CODE LICENCE and how you can make your comments heard by the FCC.

submitted by WA9OCO

via K9PKG

Editors Note: Now you know why no one is using the local repeaters.

Secretary's Report

TARS Monthly Meeting 2/9/83

All Officers & Board members were present.

OLD BUSINESS

1. No Secretary's Report
2. Treasurer's Report
Balance of \$4,143.71

NEW BUSINESS

1. John (W9FHA) is looking for a Freedom Festival Parade Coordinator.
2. Dan (N9APA) has a survey on marketing Ham Radio Equipment which is being conducted by U.E. Students.
3. Bob Bengert reported the Novice & General Class is being offered.
4. Charlie (WB9NQD) is now offering a free class on electricity to test the validity of an AMAX Coal co. course to see if it does teach.
5. Business Meeting adjourned at 8:00 pm.

BINGO was conducted by Jim (KA9KRE) and many nice prizes were won. Thanks Jim for the fun evening.

Elvin Reed
WB9VSQ

TARS Board Meeting 2/17/83

Officers present: KA9KRE, WB9VSQ
Directors present: N9DEO, N9DEV, WD9HUK, W9BPE, WB9TKM.

Meeting opened and conducted by Jim (KA9KRE) vice-president.

OLD BUSINESS

1. Bob Bengert has a Novice class on Monday and a Tech.-General class on Tuesday and they are both meeting at SIGECO.
2. ARRL Report & State Papers filled out and mailed.

3. Operating Agreement with Red Cross filled out and Mailed.
 4. Bingo needed more Publicity
- NEW BUSINESS
1. Need coordinator for the Freedom Festival Parade.
 2. No Treasurers Report
Blanche is in Florida (Hope she's not using TARS Money).
 3. Membership cards were discussed and a motion was made by N9DEO to print them 2nd by WB9VSQ, Motion passed.
4. Charlie (WB9NQD) suggested we listen to the repeater at club meetings with hand holds for late people who get locked out.
 5. Hal(WB9FNN) discussed the Hamfest. Next month we will announce the prizes.
 6. INCERT will have their new communications trailer on the R.C. Lot 2/24/83.
 7. March meeting will be the SIGECO Slide Show on the June 8th Storm of last year. Meeting adjorned 8:30 pm.

WB9VSQ

TREASURER'S REPORT

Bank Balance as of January 26, 1983.....\$4237.40

Receipts:

Interest.....	\$ 17.52
Spark's Ad.....	5.00
T.A.R.S. Dues Collected.....	96.00
Repeater Dues Collected.....	72.00
TOTAL-----190.52	

Payments:

Bingo prizes & Refreshments.....	\$ 100.00
SEGEKO.....	3.10
Indiana Bell Telephone.....	40.11
QST & Yellow Sheet ads / postage for Hamfest.....	41.00
Secretary of State Indiana.....	10.00
TOTAL-----194.21	

Bank Balance as of February 15, 1983.....\$4217.71

Cash on hand.....16.00

TOTAL \$4233.71

The following members have paid their dues since last Sparks Edition. This includes TARS & Repeater Dues Received as of February 15, 1983.

Herschel Barton, WD9FZQ
Bob Effland, AI9H
Linda Effland, WA9THM
Rebert Head, WA9ZLQ
Jim Hedrick, KA9FMD
Ken Parr, W9ANG
Marc Pendley, N9CDJ
Frank Peterson, N9DOX
Stirman Rowland, W9ZZ
Kearnie Smith, K9QLB

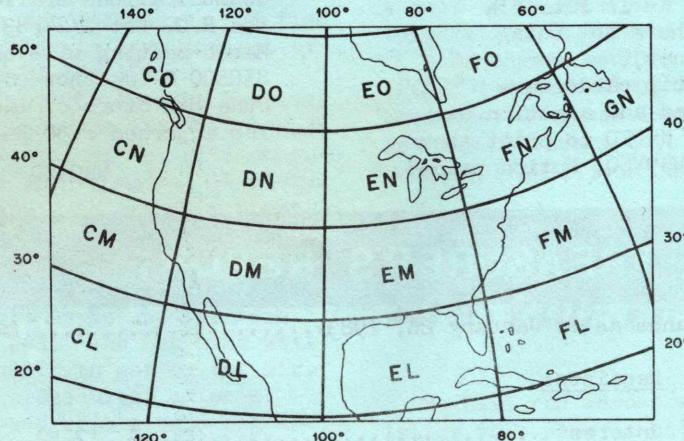
Ralph Waldo, K9STX
Shirley Waldo, K9STV
Lloyd Wienert, KB9NR
Paul Wurtz, K9JSK
Marvin Head, W9QAV
Jim Moore, WD9EDH
Larry Forster, W9ENZ
John W. Dilges, K9GKR
Scott Egnew, N9DES

determining your locator is a piece of cake!

How to Determine Your Grid Location†

†For those geographical areas not encompassed here, a complete explanation appears in the April 1982, issue of *The Lunar Letter*, entitled "Worldwide QTH Locator System Proposed by Region 1," by Lance Collister, WA1JXN.

1st and 2nd characters: Read directly from the map.



3rd character: Take the number of whole degrees west longitude, and consult the following chart.

Degrees West Longitude	Third Character	Degrees West Longitude	Third Character	Degrees West Longitude	Third Character
60-61	9	88-89	5	114-115	2
62-63	8	90-91	4	116-117	1
64-65	7	92-93	3	118-119	0
66-67	6	94-95	2	120-121	9
68-69	5	96-97	1	122-123	8
70-71	4	98-99	0	124-125	7
72-73	3	100-101	9	126-127	6
74-75	2	102-103	8	128-129	5
76-77	1	104-105	7	130-131	4
78-79	0	106-107	6	132-133	3
80-81	9	108-109	5	134-135	2
82-83	8	110-111	4	136-137	1
84-85	7	112-113	3	138-139	0
86-87	6				

4th character: This number is the same as the *2nd single digit* of your latitude. For example, if your latitude is 41° N, the 4th character is 1; for 29° N, it's 9, etc.

This four-character (2-letter, 2-number) designator indicates your 2° × 1° square for VUCC award purposes.

SWAP SHOP

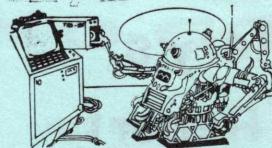
FOR SALE -- DRAKE TR-4C
with AC-4 Power Supply.
Excellent Condition
\$425.00

FOR SALE -- REGENCY HR212
Loaded with Xtals for this
area. Good Condition
Call Bev Howard, W9BC or
Phone (812) 424-1042

Public Service Band Freqs. of Interest to local Scanner Buffs.

153.950 MHz	Evansville Fire Dept.
154.190 "	Evansville Fire Dept.
155.130 "	Evans. Police Dispatch
155.190 "	Evans. Police Detective
155.370 "	Area Police Net (Link)
155.490 "	Henderson Police
155.790 "	Henderson State Police
155.820 "	Vand. County C.D.
162.550 "	NOAA Weather

SWAP SHOP



KA9LQM

MIKE ANDERSON

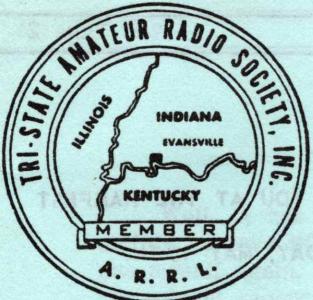
The war continues with the casualties heavy on both sides and if warring continues one or more major powers will falter or fall soon.

No this isn't the latest from the middleeast, but rather the local computer stores. You may have been unaware of the war, but may have seen signs of the battle in progress.

A chicken in every pot; or is that a computer in every home. With the department stores getting into the act the prices of some computers have dropped to all time lows with several selling for less than the price of a good video game. It can play games & the consumer was told he could do more than play games, he could own a computer. Most Hams can play the games, but to operate a computer is another story. But where does this leave the adventurer who beleives the salesman. In many cases the instruction manuals with the computers are so incomplete that even a knowledgeable Ham has trouble understanding the instructions written in Sanskrit.

Remember Alls fair in love & War. So how do you survive the war. Education is your only defense. Learn everything you can about a machine and don't be pressured into putting down the cash until you really see and understand the uses for a computer in your home. It wins at chess 99% of the time. Keeps your QSL Logs,etc. But the best use is interfaced with your Ham Radios for RTTY, CW, Try ASCII where permitted. But most of all rembmrber..... it's only a machine....it's only a machine.....

I will have a product review of one computer (The VIC-20) and Kantronics Interface next month. I have used one for the last few months and will give the good, bad, & Ugly



April 1983



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from: TO:

Mike Anderson
Post Office Box 3284
Evansville, IN 47732

044
Fay Gehres / W9AIN
2232 E. Powell
Evansville, IN 47715

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1983 HAMFEST Sunday May 15

DEALERS

FLEA MARKET

EYEBALL QSO

CW CONTEST

4-H CENTER HWY. 41 N. EVANSVILLE, IND.

GRAND PRIZES

**First — VIC-20 Computer Complete with
Kantronics Interface and Software**

Second — ICOM 2 mtr HT (2AT)

Third — VIC-20 Computer

MAJOR PRIZE TICKETS \$1.00 Each 6 for \$5.00
Drawing at 3:00 PM

6:30 A.M. c.d.t. 'til ?
In Air-conditioned Comfort
A FAMILY AFFAIR

HOURLY PRIZES

SIGECO HOT SHOW

GRAPHIC DEMONSTRATIONS OF THE DANGERS
YOU COULD ENCOUNTER IF IMPROPER METHODS
OF ANTENNA INSTALLATION ARE USED.

THIS PROGRAM COULD SAVE YOUR LIFE!

5 MILES SOUTH OF I-64

4 MILES NORTH OF EVANSVILLE

TALK IN ON 147.75/15 & Other Freq.

small talk

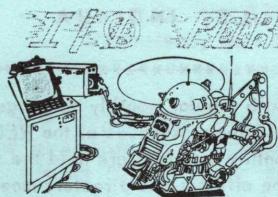
W9FHA

Ho Hum... Nothing exciting ever happens around here in Amateur Radio. Well... we do have the HAMFEST this Month at the 4-H Center. Wonder how much of my good junk I can sell. Sure hope I can find a good buy on a 2 meter rig. I'll buy it with my profits. It's always fun to visit with old friends that only show up for the Annual Hamfest. The display sponsored by SIG & ECO sounds interesting and I might even learn something. The QLF Contest is fun and some "Fists" sound a friend on 40 meters. Hal, (WB9FNN Hamfest chairman), has some great prizes lined up and several commercial vendors will have goodies for sale. The food both breakfast and lunch will be delicious. Gee... guess there is something exciting going on but, what is next? Just the Freedom Festival! We have been asked to help with the bicycle races. The races will have teams from all over participating and that gives the event an international like flair. Don't Forget Thunder-on-the-Ohio. It will be a Gold Cup Race and promises to be the best race we've had in Evansville.

And in the middle of all of that activity we have Field Day. The food and Eyeball QSO's alone make this activity the greatest! The operating is fantastic and you will be part of a team that placed 6th. in their class, nationwide. (Not too Shabby)

WOW!!!! We may all need a rest after that, How about a club picnic this fall? A chance to prop up your feet, have a tall cool one (Editors note this event should be added as a Field Day Score; 1st in Quantity of 807's) and relax. Ho Hum.. No need for that attitude if you belong to the Tri-State Amateur Radio Society, and enjoy Ham Radio. It's an exciting hobby with something for everyone, everyday.

73's
W9FHA



KA9LQM

MIKE ANDERSON

Well I'am out of the Hospital and you will have to put up with me and Sparks once more. Thought you were all missing Sparks so much I was overwhelmed by the number of angry callers "I didn't get my Sparks" thanks for the call Jim (KA9KRE).

With the Vic-20 computer selling in the \$100.00 range at several area discount store the question is whats it good for. Well I have been using the VIC-20 with the Kantronics RTTY/CW Interface for several months and it has its good and bad points.

The Kantronics Interface is extremely simple to connect to any receiver / transceiver. The audio from the speaker is fed into the interface. A second connection for the Key, and a third cable to the microphone / PTT line for RTTY use. Only one cable connects the Interface to the game port on the VIC-20 Computer. I have used the software which is available from Kantronics (ROM chip on PC Board) which has several advantages over writing your own software to interface components.

Hamsoft allows the Kantronics Interface to receive and transmit CW, RTTY, & ASCII (American Standard Code for Information Interchange) Features include Split Screen Display which lets you see the received signals and type-ahead buffer at the same time. In the CW mode you can set the transmit speed anywhere between 4-99 WPM (might try 99 WPM QLF How about that for the Hamfest Hal). In the RTTY modes you have the standard 60, 67, 75, 100 baud rates and ASCII of 110 or 300 baud. Extra features are 10 message ports each with a 256 character capacity. The type ahead buffer holds 1024 characters.

The Interface is a reasonably good TU however it's not a \$3000 HAL UNIT. At the difference in price I can suffer with the few defects in the software. The biggest problem is after the 10 memories are programmed they hold the information only as long as the computer is powered up. If you shut off the computer (Good idea unless you want to fry eggs on it after about 6 hours) your messages have to be reprogrammed. The unit will support printer output on a "Centronics" parallel port but not on the VIC-20 Serial Port. The 24 hour clock does keep reasonably accurate time but has to be reset each time you power down.

I haven't had any General Class friends try the RTTY features, however they function exactly the same except output is an audio tone fed into the microphone jack of your transmitter. The standard shifts used for Amateur communications are supported, however, the Press Shift, Inverted Shifts (Standard AP & UPI Practices) are not supported. The unit will copy the 100 WPM MARS Bullitens quite well. Now you too can copy all the ARRL and Indiana RTTY NET.

The Interface will work with the TRS-80 Color Computer, VIC-20, Commodore 64, Atari 800, Apple II, Apple II Plus, and TI-99 Computers as well and Kantronics offers the Hamsoft Software for all of the above computers as well.

One new feature which solves most of the above mentioned problems is the new Hamtext Software (aprox \$100.00). The messages which have been programmed to memory can be saved on disk. (you have to have a disk drive on the computer about \$300). After the message ports are put on disk they can be reloaded to memory quite easily. Also the VIC-20 Serial Printer is now supported so you can get a printed copy of any message you wish to file. The received text can also be stored on a disk file for later reference. (you can print from these disk files also). Long messages or bulletins can be placed in a disk file and you can transmit these files also. In general a GREAT MACHINE FOR HAMS!

NEVER QUITE DONE

Well, it has been a long dry spell here, but I finally got the energy to produce another article. I have NOT received any suggestions recently concerning article content, so I have picked one myself again. This article concerns the construction of a telephone ring detector circuit. With the advent recently of purchasing your own telephone, many of them have very poor ringers. This circuit allows you to adjust the ring to your liking. Keep in mind, that Ma Bell may require you to notify them when you connect this circuit to their lines. It also is not FCC type accepted, which may cause some hairs to raise, if they only knew at Ma Bell!

The circuit is connected to the phone line by using an optical isolator chip. These devices have input terminals connected to an LED inside the chip, and the output is via a photo-darlington transistor, again inside the chip. These devices provide a great deal of isolation between the input and the output.

As shown in the figure 1, C1 is used to couple the phone line to a full-wave bridge rectifier circuit. This bridge is made up of four individual 1 amp diodes, D1 thru D4 in the diagram. They should have a rating of several hundred volts, and a 1N4006 type would work fine. The DC output from the bridge is then connected to the LED input of the isolator chip. Capacitor C1 in this circuit functions as a current limiting device, based on its value and the frequency of the ringer voltage.

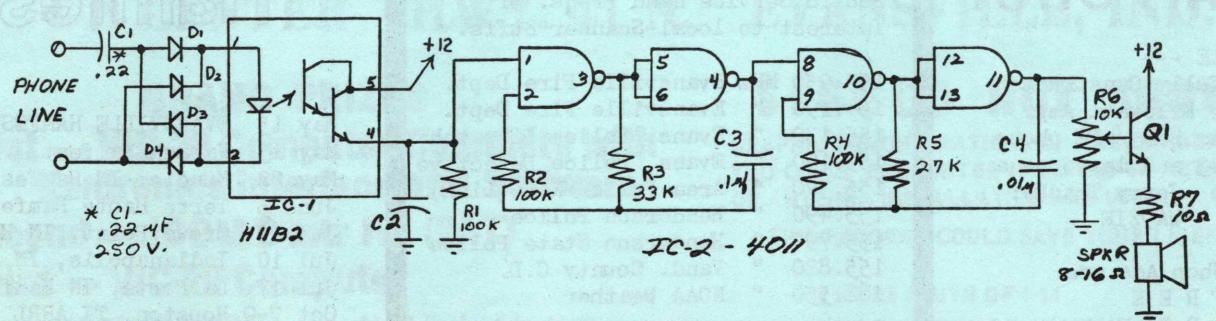
Pin 5 of the isolator chip, the darlington collector, is connected to the positive source voltage, 12 volts here, and the emitter, pin 4, is the output. When the phone rings the voltage on the line will be about 90 volts, AC. This signal is coupled through C1, rectified by the full-wave bridge, and provides current through the LED section of the isolator. The LED now pulsates with the phone ring voltage. The light output from the LED is internally coupled to the photo darlington transistor, which drives it into saturation. Each AC voltage peak on the phone line will now cause a 12 volt pulse at pin 4 of the isolator. And, since we are using an optical-isolator device, no direct connection is present between the phone line and the pin 4 output of the chip. R1 and C2 now filter the pulses coming out of the chip. R1 value should be adjusted to provide the desired output, with a value in the 100K area being a good starting point.

The signal from pin 4 of the isolator chip is connected to pin 1 of IC-2, a CMOS 4011, quad NAND gate. The first two sections of IC-2 form a free-running oscillator operating at a low frequency. R2, R3 and C3 are the components used by this oscillator, with the value of R3 determining the actual frequency. The output is found at pin 4 of IC-2 and is a low frequency square wave. It is present only during the ringing activity of the phone line. Pin 4 of IC-2 is connected to pin 8. The second two sections of IC-2, along with R4, R5 and C4, form a higher frequency oscillator operating in the audio range. The exact frequency is set by the value of R5. Pin 11 of IC-2 is the output from the second oscillator, and it is connected through R6 to the base of Q1. R6 serves as a volume control, and the emitter of Q1 is used to drive a speaker, or speakers.

The ringing of the phone causes a near 12 volt signal at pin 1 of IC-2. This gates the first oscillator on and off at the rate of the ringing phone. The output of the first oscillator at pin 4 of IC-2 now gates the second oscillator on and off. The sound heard in the speaker is a rapidly pulsating audio tone each time the phone rings.

The circuit can be built on a small piece of perf board, or a PC board could be etched. Layout of the components is not critical. The power for the ringer could be most any 12 volt source, since power consumption will be very small.

Well --- no topic is presently set for my next article. Drop me a note or a phone call if there is a circuit or topic that you would like to see covered here. I'm wide open! 73's - WB9NQD - Chas.



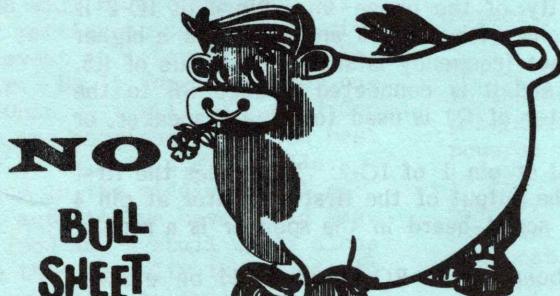
THE DIGITAL SHOP
 P.O. Box 225
 Francisco, In. 47649

The **DIGITAL SHOP** is now expanding its inventory to become your complete component supplier. Now available is a complete line of 1/4 watt and 1/2 watt carbon film resistors at prices below what you'd expect to pay anywhere else. Presently being expanded are our inventory of capacitors, diodes, transistors, IC's and microprocessor components. New kits are being designed and made available. AND, the **DIGITAL SHOP** is presently developing a completely new catalog style. Our current catalog will be available at our booth at the Evansville Hamfest on May 15, 1983. See us there!

Several specials are planned for the Evansville Hamfest, and the following list represents those currently scheduled. Others will be added by Hamfest time, so don't miss our booth!

* * * * * HAMFEST SPECIALS * * * * *
 "while they last"

14 PIN LOW PROFILE IC SOCKETS - \$0.12
 16 PIN LOW PROFILE IC SOCKETS - \$0.14
 24 PIN LOW PROFILE IC SOCKETS - \$0.20
 40 PIN LOW PROFILE IC SOCKETS - \$0.30
 7805 REGULATOR CHIP 5 VOLT 1 AMP - \$0.50
 4011 CMOS QUAD NAND GATE - \$0.20
 75 uF 150 V ELECTROLYTIC CAP - \$0.05
 2.5 AMP 1000 V RECTIFIER - \$0.10
 4116 DYNAMIC RAM 150 nS - \$1.75
 Z80-A MICROPROCESSOR 4 MHz - \$3.50



free catalog

QUALITY QSL CARDS

HAMFEST SPECIAL!!!! Receive a bonus check
 Good for \$10.00 off our regular low prices to the first 500
 HAMS Requesting our current catalog. 73's KA9LQM

IMAGES UNLIMITED

POST OFFICE BOX 958

EVANSVILLE, IN 47706

SWAP SHOP

FOR SALE ---

Beautifully Constructed
 2 Meter Kilowatt Amp.
 operates SSB / FM phone
 424-2843 and leave me a
 message Jerry Thacker
 WA9ZIE

Swap Shop Ads are
 F R E E
 to T.A.R.S. Members

Public Service Band Freqs. of
 Interest to local Scanner Buffs.

153.950	MHz	Evansville Fire Dept.
154.190	"	Evansville Fire Dept.
155.130	"	Evans. Police Dispatch
155.190	"	Evans. Police Detective
155.370	"	Area Police Net (Link)
155.490	"	Henderson Police
155.790	"	Henderson State Police
155.820	"	Vand. County C.D.
162.550	"	NOAA Weather

Hamfest

May 15	EVANSVILLE HAMFEST
May 15	Wabash Hamfest
May 22	Muncie, IN Hamfest
June 5	Terre Haute Hamfest
Jun 19	Crown Point, IN Hamfest
Jul 10	Indianapolis, IN Hamfest
Jul 17	La Porte, IN Hamfest
Oct 7-9	Houston, TX ARRL Convention



June 1983

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Sec: Elvin Reed WB9VSQ
Tres: Blanche Elpers KA9EIV

DIRECTORS:

Harold Muensterman N9DEO
Michael Knott N9DEV
Charles Finke WB9NQD
William Spencer WD9HUK
Al Wilber W9BPE
Dallas Fickas WB9TKM

EDITOR: Mike Anderson KA9LQM
476-5572

* TARS regular monthly meetings are held at the corner of Diamond and *
* Heidelbach Avenues at the RED CROSS building. *
* Monthly meetings are held the second Thursday of the month at 7:30 PM *
* The officers and directors meetings will be held on the third Thursday *
* at 7:00 PM at the RED CROSS building. *
*
* The Tri-State Emergency Net meets each Wednesday at 8:00 PM local *
* time on the W9OG repeater. 147.75 - 15 *

from: TO:

Mike Anderson
Post Office Box 3284
Evansville, IN 47732

If you have questions about SPARKS or an article for it please contact the editor.

A BIG THANKS

A big THANKS!!!!!! to all the volunteers who worked in all areas of the Hamfest. Your help and energy has made this years Annual Hamfest a sucess once again. The help always comes out of the woodwork so to speak and you are there when needed. Special thanks to Jim Shoptaugh (KA9KRE) and John (W9FHA) for arranging the SIGECO Hot Show demonstration. For those of you who were not there. It will fry a hot dog, snake, or even a Ham who tangles with the voltages common to every households property.

The flea market was a bit sparse due to the weather, oh well, with the last eleven or is it twelve weekends of rain and gloom who could pick a bright , sunny day every year. Next years hamfest chairman will have to have a committee to drive off the Indiana Rain Dancers, or do they also have Indian Sunshine Dancers we could call upon.

FIELD DAY

Field Day will be June 25, 1983 at the FOP Grounds again. A FD Chairman has yet to volunteer, how about it somebody. John W9FHA has done a great job the last two years and will help the new chairman or chair"woman" plan and organize the event. So Give it a TRY. Also on the 25th. if Field day isn't enough to keep you busy. The Freedom Festival Parade in the morning. Give Ed WD9DAV a call if you can help. Also coming up later in the Month is the Thunder on the Ohio. Any help here would also be appreciated contact the chairman if you can help.

KITCHEN

A special note of thanks to the following for their donation of time and energy in the kitchen.

Elvin Reed WB9VSQ
Roy Cloukey KA9IWP
Jim Hobbs N9CMX
Tom Ledoux KA4IQX
Harold Muensterman N9DEO

and my wife, Pam, for helping me get everything together.

N9DEV, Mike

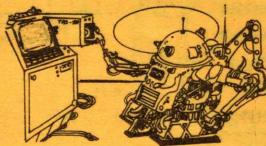
TICKETS

A special note of thanks to the following for their time and energy spent in Ticket Sales.

Roy (KA9IWP), Dave (WA9FZC)
Charles Sartore (KA9IKB),
Harold Munsterman (N9DEO),
Darwin Covert (W9KVE),
Jeanette Covert (W9MOH),
Paul Wurtz (W9JSK), Jim
Shoptaugh (KA9KRE),
Clifford McGuyer (W9GM),
Bev Howard (W9BC)
Blanche Elpers (KA9EIV)
Al Schoettlin (W9UMS)
William Spencer (WD9HUK)
Elvin Reed (WB9VSQ)
J.D. Perkins (WA9QCF)
Harold Barton (WD9FZQ)
Roy (KA9IW)

Mort W9GJ

small talk



MIKE ANDERSON

Another successful TARS Hamfest is behind us. Many thanks to Hal Wilson (WB9FNN) for organizing the event and insuring it's execution. It takes a group of volunteers to make the Hamfest a good one. Thanks to them, our club will be financially sound for another year.

Its Official!! Ed Estes (WB9RWB) is our Emergency Coordinator. Ed has done a lot of work in this area and will need your help to cover our commitments. Please say "YES" when Ed asks for your support.

Field Day and the Freedom Festival parade are the big events for the month of June. Ed Woods (WD9DVA) will organize parade communications. Pretty much the same requirements as in past years. If you have a favorite spot in the parade, call Ed now and reserve it.

Field Day will be the featured program at this month's meeting. Plans for this year's event have not been completed. I have organized the last two Field Days and will assist this year's chairman to plan the event. No we need a F.D. Chairman. What do you want this year?; More SSB, more (or fewer) stations, computer assistance, more or less competition, Party? Speak up at the club meeting on June 9.

Not club related, but seeking support, John (N4XI) is working on a VHF RTTY Mailbox. This is a super project for computer buffs and a great way to exchange information without adhering to scheduled Nets, etc. John needs ideas for raising money to finance the equipment now on load to him from "Generous Dan" (N9APA). The RF equipment is in place, ready to use. You will be hearing more on this in the Future.

Don't forget the TARS Meeting on June 9 at the Red Cross. Bring old Field Day Pictures so we can see "How it was Back Then"

73's
W9FHA

Editors

Editors Note; The following column was to be in the April issue of Sparks which short-circuited and went up in a puff of smoke. I am now printing this for your reflections, ideas, suggestions, and improvements etc. it is not to be confused with the VHF RTTY Mailbox. However I am willing to donate the droid from my business card to the enterprise; if no objections are received from Mr. Spock, Luke Skywalker, or Lord Vader.

In recent weeks, there have been several discussions on the repeater concerning a new 20 Meter Repeater. The idea was very promising but due to financial considerations, it was dropped. A Swedish firm quoted a price of \$20,000 on the four foot diameter 16 foot long cavities. As a result, an alternate plan was adopted and barring any unforeseen difficulties it should be in operation by this printing. Following is a brief discussion of the new 20 Meter DX Repeater.

The input frequency of 144.1 to 144.2 MHz will be translated to 14.100 to 14.000 MHz. The receiver for 144MHz. will be co-located with the primary 14MHz. Transmitter at W9FHS's QTH. The homebrew VXO controlled, two watt transmitter (described in 1979 Handbook) feeds a 3 element Telrex beam. The antenna has a fixed azimuth of 79.6°; the signal being reflected by a large AMAX Earth Moving Device to Francisco, Ind. (WB9NQD) QTH. The signal must be phased properly so that it will reinforce the signal generated by a small QRP transmitter at that location. The QRP transmitter's only function is to provide sufficient energy to generate a coordinating synchronous waveform on the 368.6 foot rhombic at that location with the two active antennas at fixed locations, the position of the AMAX Earth Mover is critical and will require close monitoring and positioning. Unlike here to fore antenna systems, this one will

Thanks to everyone who worked the Hamfest, I got to see some old and new faces at our booth. Nice to see the old faces but the new faces have to continue or all of Amateur Radio will die of Old age one day down the log. So much for the Hamfest. We made some money and it will keep the club solvent for another year.

The deadline for the July Issue of sparks is ALL COPY TO ME BY THE 22 of JUNE. It's only two weeks away. Why so soon you ask. I am going to the Rare DX County of Apalachia Cola Florida. 98% of that county is in the Gulf and the other 2% is full of oyster men who comprise 98% of the population. Thank heavens for the tourist(who else eats 3 dozen oysters everyday for two weeks) Hope to see some old friends who I talk with on the HF Bands while there. Get me your articles early and the attendance prizes for the July 14th Meeting will come all the way from FLA.

Any Input to Charlie "NQD" for future articles will get you a special prize or is that a special punishment. Oh Well next month Sparks will be mailed at least two weeks prior to the meeting. By going to mailing the newsletters ourselves and using a bulk rate permit you should get them sooner.

ANY ERRORS or Changes to your mailing labels should be sent to me as soon as possible. Several of you are on the list and still are not getting Sparks. If this is still hapening after the July Issue please call the Postmaster and complain!!!!

73's

KA9LQM

TREASURER'S REPORT APR. 21, 1983

Bank Bal. Feb. 15, 1983-----	\$4217.71
Cash on hand Feb. 15, 1983-----	16.00
Total-----	\$4233.71

Receipts:

Interest (Feb.) -----	\$ 17.63
Interest (Mar) -----	17.46
Tuition (AK9G) -----	100.00
T.A.R.S. dues collected -----	128.00
Reptr dues collected -----	132.00
Total -----	395.09

Payments:

S.I.G. & E. Co. (Feb) -----	\$ 2.97
" (Mar) -----	3.37
Indiana Bell Tele (Feb) -----	40.44
" (Mar) -----	40.44
Images Unlimited (Sparks 3 Mos)	75.00
Hamfest flyers & Tickets -----	74.48
Hamfest prizes -----	188.98
Advance on hamfest buttons -----	125.00
Membership Cards -----	33.82
Postage, etc (KA9EIV) -----	16.11
T.A.R.S. Refreshments -----	10.39
Total -----	611.00

April and May reports

Balance -----	\$4017.80
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Bank Balance April 21, 1983 -----	\$4017.80
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RBBS - MSO DIRECTORY

In the past few years there has been quite a lot of activity on two meters and some high frequency bands involving Message Storage Operation (MSO), and Radio Bulletin Board Systems (RBBS). In a future issue we will discuss these two concepts in more detail. For those members already into this operation here is a listing of RBBS and MSO systems that are in operation from a list furnished by Russ Johnson, N9RJ,

CONTESTING

CALL	FREQUENCY	ACCESS	LOCATION
WA1URA	14.0975	:WA1URA	Miami, Fl
KØKXR	3.625	KXRZ	Vermillion, SD
KØVKH	14.0877	MSOVKH	Rapid City, SD
WB9TAX	14.0975	OTAXZW	Clarksville, TN
K1VYQ	14.0975	:K1VYQ	Ridgefield, CT
N1BLB	14.0975	BLBZW	North Haven, CT
W1CDM	14.0975	CDMWZ	Lemon Grove, CA
W1UKZ	14.085	:W1UKZ	Scituate, MA
WA1UF	14.0975	IUFZW	New Haven, CT
K4CZ	7.0985	CZZW	Lexington, KY
KUKOZ	14.0877	MSOKOZ	Boca Raton, FL
KA4V	14.0771	KA4VZW	Franklin, NC
K5FL	14.0877	MS05FL	Denton, TX
K8EWK	14.087	MSEWK	Columbus, OH
K8IF	7.043	K8IFZW	Brighton, MI
K8ZGZ	7.0855	MS0ZGZ	Mansfield, OH
WD8CEB	7.091	.CEBZ	Fremont, OH
YV5CIV	7.040	CIVZW	Caracas

June

4- 5	New York QSO Party. (Qst May 82)
4- 5 f	RSGB National Field Day.
7	W1AW Qualifying Run.
11-12	ARRL June VHF Qso Party. (QST May 87)
11-12	World Communications Year RTTY Contest.
11-12	World Wide South American Contest.
18-19	All Asian DX Contest Phone.
18-19	Summer SMIRK Party.
18-19	9-Land CW Contest.
21	W1AW Qualifying Run.
25-26	ARRL Field Day. (QST May 86; Beacon May Issue)

July

2- 3	Venezuelan Phone Contest.
9-10	IARU Radiosport Championship.
15-17	A5 Magazine SSTV DX Contest.
16-17	SEANET CW Contest.
16-17	Colombian Contest.
23-24	Venezuelan CW Contest.

August

6- 7	ARRL UHF Contest.
6- 7	DARC WAE CW Contest.
13-14	SEANET Phone Contest.
19-21	A5 Magazine UHF FSTV DX Contest.
20-21	SARTG Worldwide RTTY Contest
27-28	All Asian CW Contest

The human brain is a wonderful thing. It starts working the moment you are born and never stops until you stand up to make a speech.

DX REPEATER Continued from Page 2

set new standards for increased gain. The antenna gain for each antenna is added together. System gain is equal to the power of the transmitter raised to the power of the sum of the antennas gain. (Editors note: find that is the Handbook) The 3 element beam has a gain of 9.1db and the rhombic's gain was measured at 10.6 db for a total of 19.7db. System gain is then equal to the transmitter power(2 watts) raised to the 19.7 power or 851708.37db gain over an isotrophic radiator. This is a tremendous amount of power and the EPA has voiced concern on the effects it will have on wildlife (W9KXP and WB9NQD) in the area.

The mode of operation was originally planned for SSB. Audio problems were enormous and this idea was abandoned. Conventional CW was tried with marginal success. A new scheme utilizing inverted Morse has proven successful. You must send only the spaces, allowing greater time intervals for synchronous coordination. WD9DVA has written a program for the VIC-20 that allows the user to enter Fortran Based ASCII through the keyboard, generating perfect morse code spaces for keying your transmitter.

We are still working on a suitable 20 Meter receiver for the system. The awesome amounts of R.F. Energy have created problems for the receiver front end. Your solutions to this problem are solicited.

The system is available for all club members to use. A small 2 Meter low power rig, such as the one described on page 237 of April QST will do the job. The ability to talk anywhere on Earth using only a 9 volt battery as a power source is a significant technological break through. Acknowledgements; Mike (W9KXP) is responsible for suggesting a new repeater service. The technical efforts of WD9DVA and hardware support of WB9NQD have made this effort possible. I have applied for a Patent on this set up and am interested in finding individual investors to market similar repeaters. Your interest and support in developing new ideas and experiments for TARS is encouraged. Send your ideas or completed works to the Sparks Editor for Publishing.

73's W9FHA

Indianapolis Hamfest

The Indianapolis Hamfest is shaping up to be more enjoyable this year than any previous year. The flea market will be bigger and will feature the outdoor "Walk way" as well as the indoor areas. Electricity is available making this an excellent opportunity to show your wares.

New Equipment displays will be even better than last year. The Computer Building is filling fast. The Amateur Radio Bldg will be full with many dealers new this year. Computers have been separated to a second building to insure that you have the time to visit both or either, whichever your tastes run. Forums on SSTV, Yagi Antenna Design, Packet Radio, RTTY, Computers, MSO will be featured during the day with a different forum starting on the hour. Computer forums on Apple, DEC, and TI will be given by Graham Electronics for all you computer nuts..



free catalog

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Interchangable Type Faces with Tractor feed or platten feed for letters.

Call 476-5572 KA9LQM

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POST OFFICE BOX 958

EVANSVILLE, IN 47706

Public Service Band Freqs. of Interest to local Scanner Buffs.

- | | |
|---------|---------------------------|
| 153.950 | MHz Evansville Fire Dept. |
| 154.190 | " Evansville Fire Dept. |
| 155.130 | " Evans. Police Dispatch |
| 155.190 | " Evans. Police Detective |
| 155.370 | " Area Police Net (Link) |
| 155.490 | " Henderson Police |
| 155.790 | " Henderson State Police |
| 155.820 | " Vand. County C.D. |
| 162.550 | " NOAA Weather |

Hamfest

- | | |
|----------|-----------------------------|
| June 11 | Owensboro, KY Swapfest |
| June 19 | Crown Point, IN Hamfest |
| July 10 | Indianapolis Hamfest |
| July 17 | La Porte, IN Hamfest |
| Oct. 7-9 | Houston, TX ARRL Convention |

SMALL TALK

The period of volunteering is almost over for this year. Spring and Summer activities require that we all pitch in and do our part so a few do not feel obligated to do everything. We will need several people to serve on the nominating committee and select a slate of officers for next year.

In the near future, we will have an astronaut Ham circling the Earth making contacts on two meters. How's that for Excitement? Just when it seems we are turning into a group of appliance operators, trained by "BASH", someone breaks from the pack. Amateurs have enjoyed the reputation of being "professional", disciplined and technically oriented. Law Enforcement agencies, U.S. Weather Bureau, Red Cross, Civil Defense and other official agencies feel they can take our word as truth and make decisions based on what we report. Since we all share in this reputation, we should do our small part in maintaining it.

It does not require a technical degree or 8 hours a day on the traffic nets for your contribution. However you can not take the "Wait and see if someone else will do it" attitude. Assist when it is within your capabilities (You may learn something) and be accurate in your reporting. By doing so, you will have honestly earned the reputation we Amateur Radio Operators have.

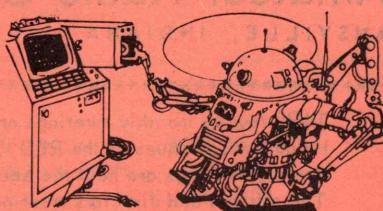
END OF SERMON!

73's

W9FHA

Public Service Band Freqs. of Interest to local Scanner Buffs.

153.950 MHz Evansville Fire Dept.
 154.190 " Evansville Fire Dept.
 155.130 " Evans. Police Dispatch
 155.190 " Evans. Police Detective
 155.370 " Area Police Net (Link)
 155.490 " Henderson Police
 155.790 " Henderson State Police
 155.820 " Vand. County C.D.
 162.550 " NOAA Weather



The following was sent to me by a fellow amateur, Name has been withheld for reasons of security. I wouldnt tell if it happened to me either.

"I'm writing in response to your request for additional information for block number 3 of the Accident Report. I put' poor planning' as the cause of my accident. You said in your letter I should explain more fully, and I trust the following details will be sufficient."

I am an Amateur Radio Operator and on the day of the accident I was working alone on the top section of my new 80' tower. When I had finished my work I discovered that I had, over the course of several trips up the towers, brought up about 300 lbs of tools and hardware. Rather than carry the now un-needed tools and materials down by hand, I decided to lower the items down in a small barrel by using a pulley, which fortunately was attached to the gin pole at the top of the tower."

"Securing the rope a ground level, I went to the top of the tower and loaded the tools and materials into the barrel; I went back to the ground and untied the rope holding it tightly to insure a slow descent of the 300 lbs of tools. You will note in Block Number 11 of the Accident Report that I weigh only 155 lbs."....

"Due to my surprise of being jerked off the ground so suddenly, I lost my presence of mind and forgot to let go of the rope. Needless to say, I proceeded at a rather rapid rate of speed up the side of the tower. In the vicinity of the 40' level, I met the barrel coming down; this explains my fractured skull, and broken collarbone. Slowed only slightly, I continued my rapid ascent, not stopping until the fingers of my right hand were two knuckles deep into the pulley."

"Fortunately, by this time, I had regained my presence of mind and was able to hold on to the rope in spite of the pain. At approximately the same time, however, the barrel of tools hit the ground and the bottom fell out of the barrel. devoid of the weight of the tools, the barrel now weighed 20 lbs. I refer you again to my weight in Block Number 11. As you might imagine, I began a rapid decent down the side of the tower. In the vicinity of the 40' level, I met the barrel coming up; this accounts for my broken ankles and lacerations on my legs and lower body."

"The encounter with the barrel slowed me enough to lessen my injuries when I fell on the pile of tools, and fortunately only 3 vertebrae were cracked. I'm sorry to report, however, that as I lay there on the tools in pain, unable to stand, and watching the empty barrel 80' above me, I again lost my presence of mind. I let go of the rope."

FIELD DAY 1983?????

73's

KA9LQM

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Secretary's Report

Board of Directors meeting May 19, 1983

Meeting called to order at 7:10 p.m. CDT

Officers in attendance; W9FHA, Pres., KA9KRE, V. Pres., and KA9EIV, Tres.

Directors present; W9BPE, W9GJ, N9DEO, N9DEV, WD9HUK and WB9NQD
Others attending were KA9LQM, Editor and WB9RWB Emergency Co-Ord.

Topics of discussion:

Hamfests-- Last year, this year and next year.

Mailing of Sparks-- Look into bulk mailing rates for non-profit organizations.

Thunder on the Ohio-- Red Cross needs help in Communications
Red Cross also needs Amateur Radio Operators in times of Emergencies.

Field Day--- June 25 & 26-- How to go? With CW Station & Novice-Phone and novice or CW/Phone and Novice.
How about a fun time and not try to be competitive?
Do we want a picnic meal catered or burgers on a grill?
Think about it before the June meeting?

Meeting closed 8:32 p.m. CDT

KA9EIV

CHANGE TO BY-LAWS

Change to the Constitution. Amendments to attached by-laws may be changed if notice is given in writing two weeks prior to the vote. In August we will vote on the attached by-law that establishes the advertisement rate in Sparks. The current charge for commercial ads is \$5.00. The proposed change will delete the by-law permitting the rate to be flexible to accomodate varying sizes, duration and complexity of ads.

Ham IQ

The following questions will require you to use your Ham IQ. If you're already a General Class license holder take the test to see if you are retaining the information you worked so hard to learn. If you're a novice use this test as a practice for your plans to upgrade.

ANSWERS NEXT MONTH

SWAP SHOP

High voltage power supply components - ideal for KW Linear. Includes heavy duty Thordarson 500 M.A. secondary providing either 3130 or 2520 RMS A.C. volts, heavy duty 500M.A. Thordarson choke, several high voltage capacitors. Can be used to build a power supply with diodes in either full wave, bridge or voltage doubler circuit. Also, have a beautiful 48 inch high cabinet relay rack with rounded corners, and mounted on four rubber tired 4 inch swivel casters. Asking \$75.00 for each-- the power supply and the cabinet relay rack. Call----- Mort Silverman, W9GJ at 476-2984.

- Q11. What is the resistance of 400- and 600-ohm resistors connected in parallel?
- Q12. Two 600-ohm resistors are connected in parallel and then connected in series with a 300-ohm resistor. What is the equivalent total resistance?
- Q13. If a 10-volt peak ac voltage is applied to a 100-ohm resistor, how much power is used?
- Q14. What is a microfarad?

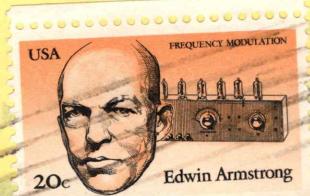
- Q1. If you are given a signal report of 3-5-9, what does it mean?
- Q2. How often must you identify your station while on the air?
- Q3. What does MUF stand for?
- Q4. How does ionization of the atmosphere relate to sunspot activity?
- Q5. Do the higher hf bands open during low sunspot activity?
- Q6. What is the definition of a control operator?
- Q7. Where should your license be kept?
- Q8. Long distance transmission by way of the ionosphere takes place principally in which portion of the radio spectrum?
- Q9. What is a milliampere?
- Q10. If a 1K resistor has a 0.1-ampere current through it, what is the voltage across it?



Oct 83

SPARKS

Tri-State Amateur Radio Society EVANSVILLE, INDIANA



Edwin Armstrong

OFFICERS:

Pres: John Small W9FHA
V.P.: Jim Shoptaugh KA9KRE
Sec: Elvin Reed WB9VSQ
Tres: Blanche Elpers KA9EIV

DIRECTORS:

Harold Muensterman N9DEO
Michael Knott N9DEV
Charles Finke WB9NQD
William Spencer WD9HUK
Al Wilber W9BPE
Mort Silverman, W9GJ

EDITOR: Mike Anderson KA9LQM
476-5572

TARS regular monthly meetings are held at the corner of Diamond and Heidelbach Avenues at the RED CROSS building. Monthly meetings are held the second Thursday of the month at 7:30 PM. The officers and directors meetings will be held on the third Thursday at 7:00 PM at the RED CROSS building.

The Tri-State Emergency Net meets each Wednesday at 8:00 PM local time on the W9OG repeater. 147.75-15

from:

Mike Anderson
Post Office Box 3284
Evansville, IN 47732

To:

44
Fay Gehres / W9AIN
2232 East Powell
Evansville IN 47715

If you have questions about SPARKS or an article for it please contact the editor.

STATE OF INDIANA EXECUTIVE DEPARTMENT INDIANAPOLIS

PROCLAMATION

To All To Whom These Presents May Come, GREETINGS:

Executive Order

WHEREAS,

Indiana Amateur Radio Operators perform invaluable services which protect and save the lives and property of the citizens of Indiana during times of crises by their outstanding efforts in the performance of their volunteer duties during hazardous weather, disasters and other emergencies; and

WHEREAS,

Indiana Amateur Radio Operators provide communications equipment and volunteer operators to governmental agencies such as Civil Defense, the National Weather Service and to private agencies such as the Red Cross; and

WHEREAS,

amateurs operate regularly scheduled nets for message handling within the U.S.A.; they provide two-way communications for ships at sea; aid in disasters such as floods, earthquakes, and fires; and handle direct messages to and from members of the U.S. Armed Forces throughout the world; and

WHEREAS,

without such valuable and dedicated service, loss of life and property during times of crises would be far greater; and

WHEREAS,

the week of October 9 - 15, 1983 has been set aside as a time to recognize and honor the volunteer radio amateurs in the State of Indiana;

NOW, THEREFORE, I,

Robert D. Orr, Governor of the State of Indiana, do hereby proclaim the week of October 9-15, 1983, as

AMATEUR RADIO APPRECIATION WEEK

In the State of Indiana, and encourage all Hoosiers to be cognizant of the important contributions made by these dedicated volunteers.

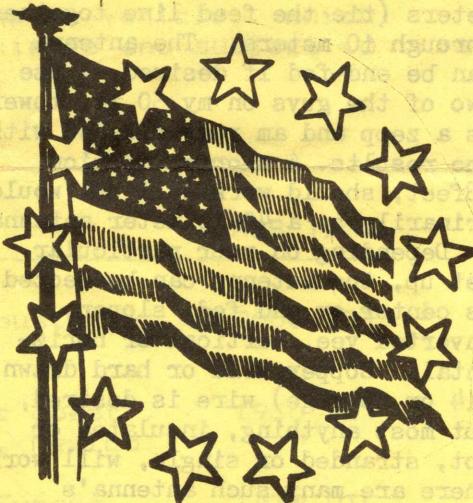


BY THE GOVERNOR

Edwin J. Fugger
Edwin J. Fugger
Secretary of State

IN TESTIMONY WHEREOF, I have hereunto set my hand and caused to be affixed, the great seal of the State of Indiana, at the Capitol, in the city of Indianapolis, this 6th day of July, 1983.

R.D.O.
ROBERT D. ORR
Governor of Indiana



STS-9 is scheduled for launch on Oct. 28, 1983 and will mark the First Use of Amateur Radio from a United States Space Mission. The nine day mission will include 2 meter operation by mission specialist Owen Garriott, W5LFL. Details of the STS9 Amateur Radio operation can be found in the last few issues of QST.



SMALL TALK

I am frequently asked about the antenna used for Field Day, a center fed zepp. It is a versatile antenna, works decently on all the bands and is relatively cheap to construct. The main draw back is, it requires a tuner with a balanced line input. It is possible to convert an existing tuner for balanced input by constructing a balun coil utilizing a toroid core (see Handbook for details). The Field day antenna is 136 feet long and center fed with 450 ohm open line feeder. Feeder length is critical and requires pruning for the antenna to operate properly on all the bands. The antenna will work 160 meters (tie the feed line together) through 10 meters. The antenna can be end-fed if desired. I use two of the guys on my 50 ft. tower as a zepp and am very pleased with the results. A shorter version, 68feet, should work well but would primarily be a 40-10 meter antenna.

Depending on your particular set up, the antenna can be erected as center or end fed, sloper, inverted vee, vertical or horizontal. Copper Weld or hard drawn (14 or 16 gage) wire is desired, but most anything, insulated or not, stranded or single, will work. There are many such antenna's in use around town and most users are pleased with the results.

see you at the red Cross.

73's

John (W9FHA)



A NEW FRONTIER

The new ARRL videotape "A NEW FRONTIER" will be shown at the October 13 meeting if it arrives in time. This new movie highlights the advances in current and future mode of communications and will give you a good background on the STS-9 mission which is scheduled to launch at the end of October.

Be one of 500 or so Hams who will communicate with the first QSO from space. This is one QSL you could be proud of; When will the ARRL have a DXCC from space. It could happen in the future.

NOVEMBER ISSUE	DEADLINE
	October 28, 1983
DECEMBER ISSUE	
	November 25, 1983
JANUARY ISSUE	
	December 30, 1983
FEBRUARY ISSUE	
	January 27, 1983

TREASURER'S REPORT SEPT. 27, 1983

Bank Bal. Aug. 29, 1983-----\$5055.48

Receipts:

Picnic Reservations-----\$53.00

Payments:

Sparks Ad refund (overpaid)-----	\$ 5.00
S.I.G. & E. Co.-----	2.89
Bell Telephone-----	40.44
Postage for picnic flyers-----	22.00
Picnic supplies-----	5.22
National Kidney Foundation (in memory of WA4TOK) -----	25.00
Salem United Church of Christ (donation for use of picnic grounds) -----	25.00
Kentucky Fried Chicken-----	287.17
Lunar Electronics (75/15) -----	128.37
Total-----	\$ 541.09

Bank Bal. Sept. 27, 1983 -----\$4567.39

Public Service Band Freqs. of Interest to local Scanner Buffs.

- 153.950 MHz Evansville Fire Dept.
- 154.190 " Evansville Fire Dept.
- 155.130 " Evans. Police Dispatch
- 155.190 " Evans. Police Detective
- 155.370 " Area Police Net (Link)
- 155.490 " Henderson Police
- 155.790 " Henderson State Police
- 155.820 " Vand. County C.D.
- 162.550 " NOAA Weather

Poco Press / The Westlink Report-
11119 Allegheny Street
Sun Valley, California 91352

INITIAL ORBITAL TIMES FOR STS-9

Any given orbit begins as the spacecraft crosses the equator, traveling west to east. The following orbital operating times are based on an 11:30 AM launch EDT on October 28th. If the launch is delayed for any reason, you must add the amount of the delay to the times stated here to obtain new orbital track timing for an operating pass. Also, what we are listing here are only the "official operating periods" scheduled as of September 8th. Dr. Garriott says he will attempt to provide other "unofficial" operating periods as well, but these will have little advance notification. Whenever possible, advance notice of these extra operating times will be made available over W1AW, in bulletins issued by NASA affiliated radio clubs (such as W5RRR in Houston) and on the daily updates of the Westlink Radio Network Hollywood newsline: (213) 465-5550. All North American passes are listed in local time while those for foreign contacts with the spacecraft are in GTC. All times are approximate for the start of a given pass. You may calculate the specific time over your QTH by adding the speed of the space vehicle, which is 17,000 miles per hour. All data is approximate and subject to change and update.

ORBITAL DATA

Orbit#	Date	Ground Track	AOS Time
39	10/30	Spokane, Denver, Dallas, Houston, New Orleans, S. America	2000 CDT
40	10/30	N. California, down Pacific coast E. of San Francisco & L.A., Mexico	1930 PDT
47	10/31	W. Australia, S. America, Europe	1430 UTC
NOTE: Standard time begins this date			
63	11/1	S. America, USSR, India, Australia	1330 UTC
64	11/1	Iran, Scandinavia, USSR	1555 UTC
77	11/2	NW Africa, E. Europe, Poland, China	0850 UTC
79	11/2	N. tip of S. America, Caribbean, N. Europe, USSR, India	1250 UTC
80	11/2	Caribbean, all E. Coast states, Newfoundland, U.K., central Europe	0815 EST

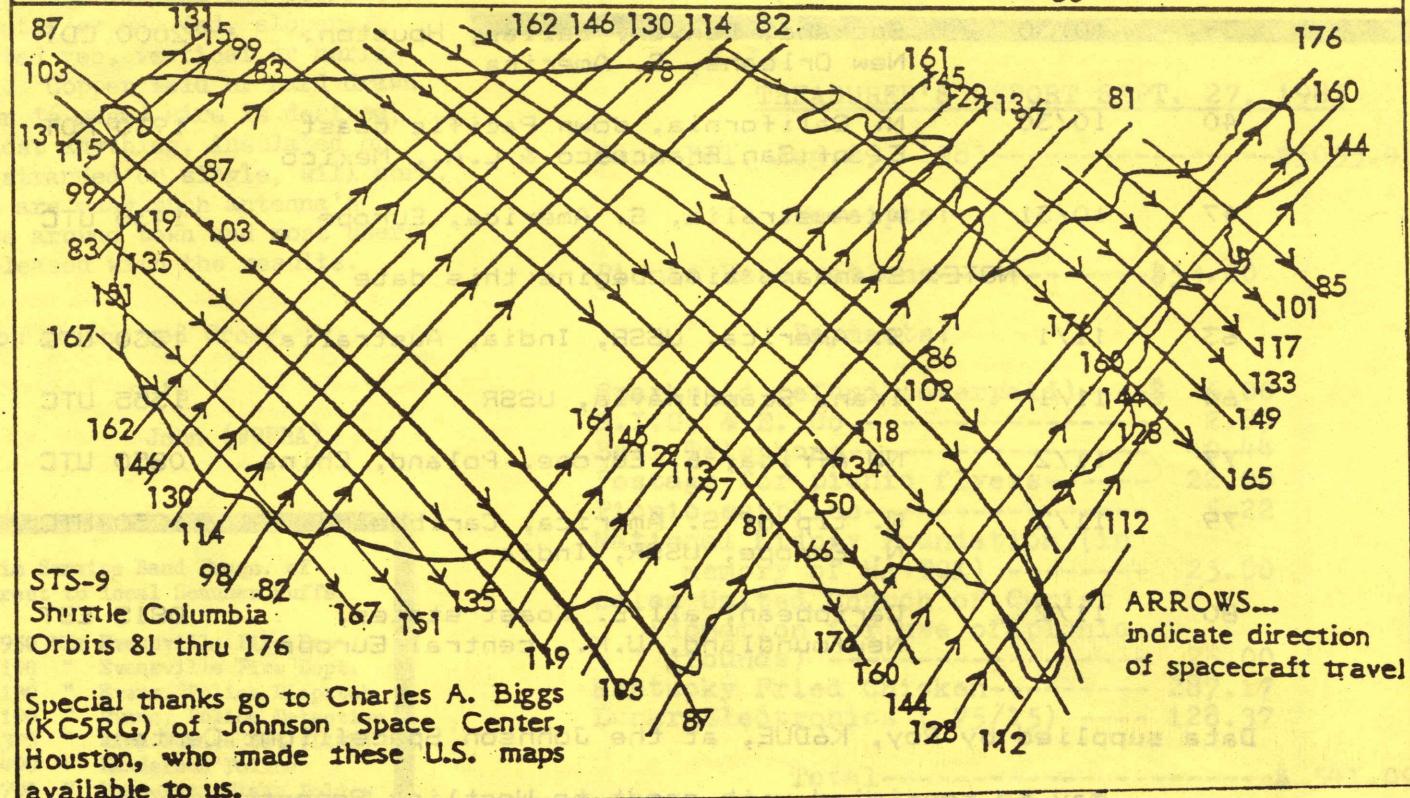
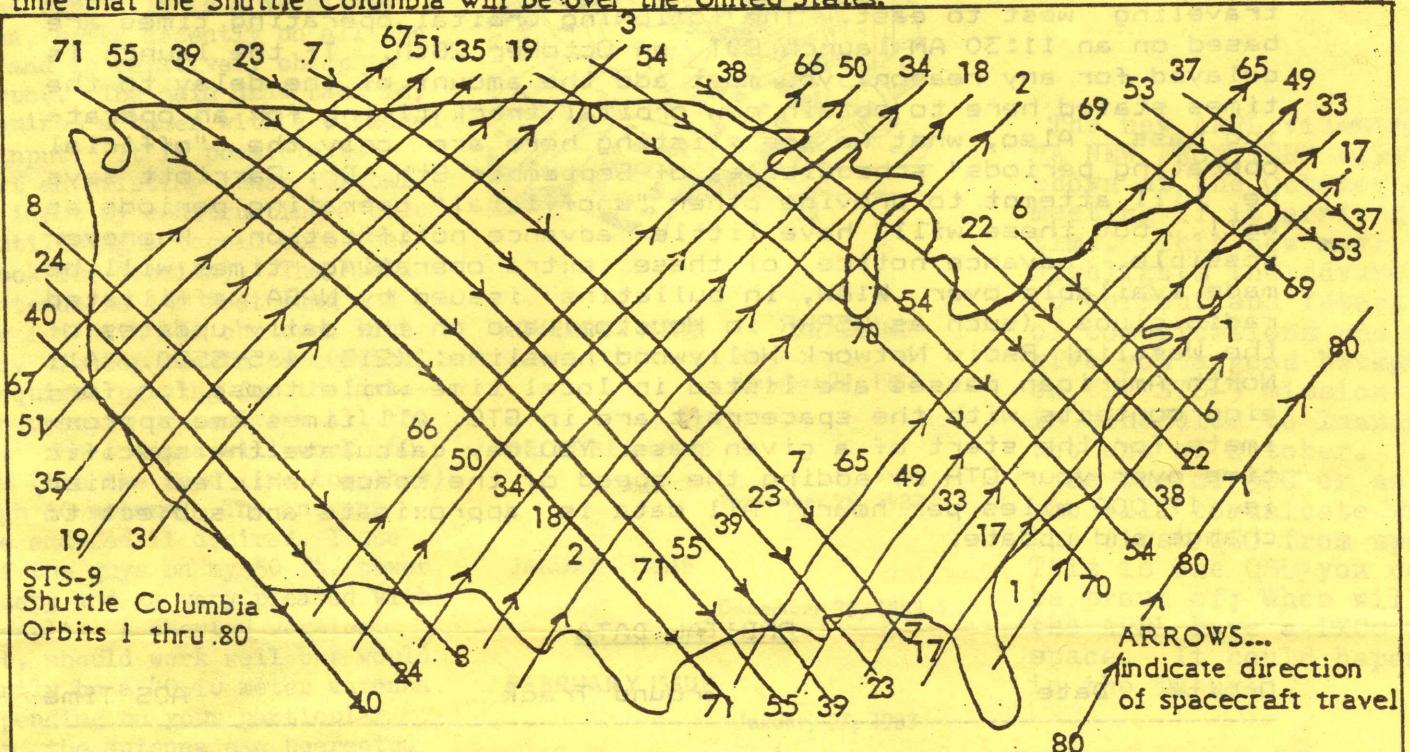
Data supplied by Roy, K6DUE, at the Johnson Spaceflight Center.

May be reprinted with credit to Westlink Report

Post Office Box 11116
Arlington Station
San Antonio, California 78225
A1125

STS-9 Groundtrack Chart - Orbits Over United States

These two maps indicate every orbit that the STS-9 will be over the United States, the direction of travel and the orbit number. The chart on the left indicates the equatorial crossing time that each orbit begins after lift-off. You must add the appropriate minutes to obtain the time that the Shuttle Columbia will be over the United States.

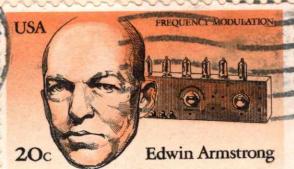




11-83

SPARKS

Tri-State Amateur Radio Society EVANSVILLE, INDIANA



OFFICERS:

Pres: John Small W9FHA
V.P.: Jim Shoptaugh KA9KRE
Sec: Elvin Reed WB9VSQ
Tres: Blanche Elpers KA9EIV

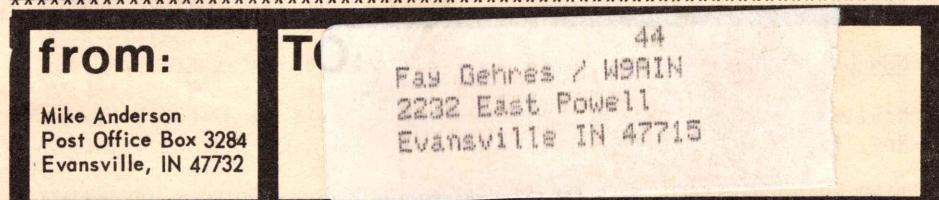
DIRECTORS:

Harold Muensterman N9DEO
Michael Knott N9DEV
Charles Finke WB9NQD
William Spencer WD9HUK
Al Wilber W9BPE
Mort Silverman, W9GJ

EDITOR: Mike Anderson KA9LQM

476-5572

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* at 7:00 PM at the RED CROSS building.
*
* The Tri-State Emergency Net meets each Wednesday at 8:00 PM local
* time on the W 9 O G repeater. 147.75-15



If you have questions about SPARKS or an article for it please contact the editor.



NOV. ELECTIONS

DEC. XMAS PARTY

The Christmas Party will be held Friday, December 9, 1983.
At the Kingsmens Club on hwy 57

7:00 PM till ??????

Menu

Turkey and Dressing, Green Beans, Mashed Potatoes, Cole Slaw, Soft Drinks, Coffee, and Beer.

Over \$250.00 in door prizes (Who wants to win a door) will be given away during the party. Reservations must be returned to Blanche KA9EIV before December 1, 1983.

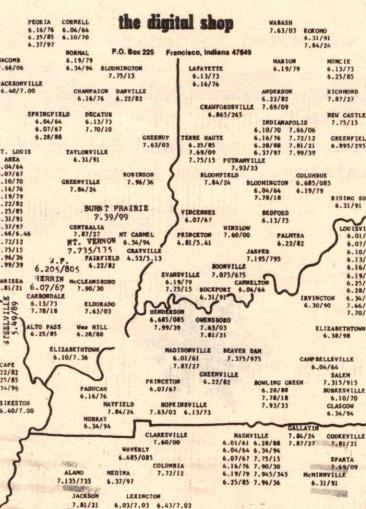
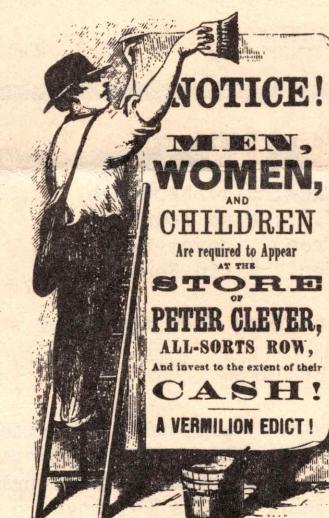
Cost will be \$5.00 per person, see reservation form on Page 2.

Good Food

Good Times

Good Friends

See you at the PARTY!!!!!!



SMALL TALK

The October TARS meeting provided us with an opportunity to see the "Latest" in communication techniques. Both the demonstrated Mail box (MSO) and the satellite communications movie are examples of systems available to hams and not affordable for most large companies. Operating 30 meter CW with my homebrew 5 watt rig seems very primitive now. Yet there is still something very intriguing about the ability to communicate over great distances using basic techniques and equipment.

The November meeting will feature satellite communications via Oscar 10. Dan (N9APA) and Rick (WB9SAN) will demonstrate equipment and (Hopefully) be able to listen to QSO's live through the satellite.

Bob, WB9LCA provided me with a copy of the Oct 6 Federal Register covering the Volunteer Examiner Program. It is very difficult to decipher the article and I do not understand all of the details. At some future date the F.C.C. will issue a Public Notice detailing how and under what circumstances an organization may apply to the F.C.C. to become a Volunteer E Examiner. Details will be in the November or December issue of QST I'm sure.

We are sad to see WD9DVA, Ed leave our community, and his home for 17 years. Declo has moved the Woods family to Indianapolis. Ed has always given his fair share - plus to assist in Amateur Radio Events. He will keep in touch via 2 metgers while mobile in the area.

The Election of club officers will be held at the November meeting. I believe we have put together a slate of candidates that will bring in new ideas and make 1984 an even better year for TARS. Be certain to attend this important meeting on November 10th. at the Red Cross, 1930 hours. This will be the last "NORMAL" (are any meetings normal?) meeting of the year. In Dec. we will have a party. 73's W9FHA

TREASURER'S REPORT OCTOBER 26, 1983

Bank Balance Sept. 27, 1983 -----	\$4567.39
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Receipts:

Interest-----	\$ 22.27
Salem UCC (donation)-----	25.00
Total-----	47.27

Payments:

SIGECO-----	\$ 3.06
International Crystal-----	36.63
Indiana Bell Telephone Co.-----	40.44
Motorist's Mutual Insurance-----	50.00
Picnic (ice)-----	3.99
T.A.R.S. Meeting (ice)-----	2.00
T.A.R.S. Meeting (refreshments)-----	11.45
Radio Shack (19/79 Repr.)-----	59.90
Sparks (Oct. Printing & Postage)-----	49.40
Kingsmens Club (Xmas Party)-----	145.00
Total-----	\$ 401.87

Bank Balance October 26, 1983-----	\$4212.79
------------------------------------	-----------



Christmas Party Reservations should be sent to

Blanche Elpers / KA9EIV
840 Herndon Drive
Evansville, IN 47710

Name _____ Call _____

I will need _____ Dinner Reservations for the TARS Christmas Party.

Enclosed find \$ _____ \$5.00 per person.

RESERVATIONS MUST BE IN TO BLANCHE BY DECEMBER 1, 1983.



DECEMBER ISSUE

November 25, 1983

JANUARY ISSUE

December 30, 1983

FEBRUARY ISSUE

January 27, 1983

Secretary's Report

TARS Meeting 10/13/83 Red Cross Bldg. 7:30

Treas. Report \$4,467.09

OLD BUSINESS

Repeater - Mike (W9KXP) reports work to be done soon.
S.E.T. Ed (WB9RWB) will operate from Red Cross Bldg. Sat. 10/15/83
Everybody Check in.

NEW BUSINESS

Nov. meeting will be the election- come out and vote.
Nov. Program- Satellite Communications

TARS BOARD MEETING 10/20/83

Members present W9FHA, KA9KRE, WB9VSQ, KA9EIV, N9DEO, WB9NQD, WD9HUK, KA9LQM, W9KXP, WA9HGA.

OLD BUSINESS

Election

Slate of Officers

1. Pres, Jim Shoptaugh
2. V.P., Mike Townsend
3. Treas., Joyce Spencer
4. Sec., Elvin Reed

Board Members

1. Charlie Saratore
2. Roy Clukey
3. Jim Hobbs
4. Bill Spencer

Nominations from the floor will be taken before the Nov. Elections.

NEW BUSINESS

Christmas Party will be Friday , December 9, Kingsman Club 7:00 PM
 a. Cost will be \$5.00 per person.
 b. Several valuable door prizes in excess of \$250.00 will be given away.
 c. Reservations returned to Blanche by Dec. 1, 1983.

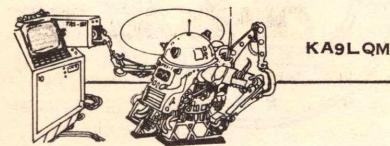
RED CROSS

It was voted to donate \$500.00 to the Red Cross

Volunteer Examining Club

Board discussed TARS Becoming a VEC Club and be a part of the Volunteer Examining Program in the future.

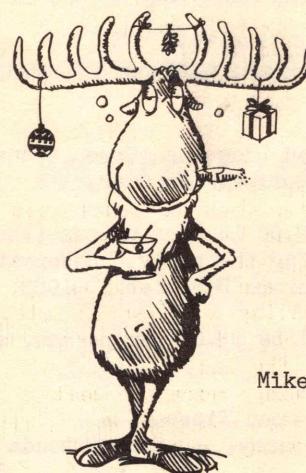
Elvin WB9VSQ



Another year is almost over & I would like to thank this years Officers for a job well done. A lot of work goes into making the meetings interesting as well as (Hey how did the cokes get here) every month. Come to the Xmas party and you will be in for some very pleasant surprises.

Don't know what to get for a Christmas present. Try a Vic-20 or other home computer and get on the N9APA MSO, cost is reasonable and you will have a lot of fun. Just ask George (WA9OCO) about the troubles of computers; his has a mind of it's own; but before you know it George won out and now his computer is doing what he wants it to. I wonder if his secret would work with my Wife Carolyn, oh well, I guess computers can't control everything, YET!!

I am working on a Certificate or Special QSL Card for Next Years Freedom Festival and Thunder Boat Race. How about a Special Events station from the riverfront. Send your ideas for designs to me and if I use your idea, YOU WILL NOT WIN ANYTHING, I just won't have to come up with a design. With the coverage the Freedom Festival Gets, Amateur Radio could benefit from the publicity .. also it could make the riverfront event a fun time.. How about a public demonstration of Amateur Radio at the same time..



Mike KA9LQM

MSO

1. All commands are preceded by a period (for example to call up a short directory you would type the following command:
.SDIR and one linefeed or carriage return)
2. to read any file you would use the command:
.READ (filename) you would omit the brackets and type filename of the file you desire.
3. To write a file you must precede the text with the command;
.WRITE (filename) and one linefeed or carriage return
Then type your message or load it in frin a buffer.

Following this you must end the file with the command:
.ENDFILE

Failure to include the .WRITE and .ENDFILE will result the an error message file not stored and the reason.

It is harder to tell how to operate the mailbox than to actually use the MSO. At any time use the command .HELP to call up a list of the commands and procedures used.

The .EXIT Command will turn off the MSO. If you try to enter the system with no luck use the following command to restart the MSO Operation:

.MSON9APA

IMPORTANT!!! The (.) period must precede all commands.

The November program will be presented by Dan (N9APA) and Rick (WB9SAN) and will be on the Oscar Satelitte Communications.

Also thanks to Dan and Rick we had a great demonstration of the N9APA MSO (Message Storage Operation) on 145.7 MHz.

Try the MSO you will have a great time. If you have any questions just give Dan a call. Will print the complete command list and full instructions for MSO Operation in the Dec. Sparks.

A great idea would be for all you computer wizzzzzards to write your articles for Sparks and leave them in the mso.

I could then transfer the file to my computer and let it type the articles and I could retire and collect all the profits of your labors. Now the only question is how to get Blanche to pay me a salary for writing Sparks. That will be a problem anybody have any ideas how to convence Blanche let me know via the MSO. She isn't on the MSO YET and if I bribe OCO he might not tell her how I got the idea to fool her.

73's Mike



QUALITY QSL CARDS

IMAGES UNLIMITED

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EVANSVILLE, IN 47706

SEND 80¢ POSTAGE FOR OUR FULL COLOR CATALOGS
INCLUDING 1/4 POUND OF SAMPLES AND ORDERING KIT.

73's KA9LQM

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HQ 180-A GEN. COV. RECEIVER

HX-50 SSB TRANSMITTER

Clean and recently reconditioned
OK EXCEPT on 20 Meters.

Any Reasonable Offer

Wendel Munroe / W9NLO
1628 Southeast Blvd.

Phone 479-0419

Public Service Band Freqs. of
Interest to local Scanner Buffs.

153.950	MHz	Evansville Fire Dept.
154.190	"	Evansville Fire Dept.
155.130	"	Evans. Police Dispatch
155.190	"	Evans. Police Detective
155.370	"	Area Police Net (Link)
155.490	"	Henderson Police
155.790	"	Henderson State Police
155.820	"	Vand. County C.D.
162.550	"	NOAA Weather

NOVICE CLASS

Bob Bengert will start a new NOVICE class on November 16, 1983. The classes will be held at the Oak Hill Library on Wednesday evenings from 7:00 to 8:30 CDT and will last for 10 weeks. Cost will be \$10.00 per person.

For more information call Bob at 479-3850 or Dan, N9APA at the Ham Shack.



12-83

SPARKS

Tri-State Amateur Radio Society EVANSVILLE, INDIANA

DECEMBER 1983

OFFICERS:

Pres: John Small W9FHA
V.P.: Jim Shoptaugh KA9KRE
Sec: Elvin Reed WB9VSQ
Tres: Blanche Fibers KA9EIV

DIRECTORS:

Harold Muensterman N9DEO
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* time on the W9OG repeater. 147.75-15 *
*

from:**TO:**

Mike Anderson
Post Office Box 3284
Evansville, IN 47732

If you have questions about SPARKS or an article for it please contact the editor.

PLAN AHEAD

DEC.

XMAS PARTY

The Christmas Party will be held Friday, December 9, 1983.
At the Kingsmens Club on hwy 57 (See map & Directions on next page)

7:00 PM till ??????

Menu

Turkey and Dressing, Green Beans, Mashed Potatoes, Cole Slaw, Soft
Drinks, Coffee, and Beer.

Over \$250.00 in door prizes (Who wants to win a door) will be given
away during the party. Reservations must be returned to Blanche
KA9EIV before December 1, 1983.

see reservation form on Page 2.

Good Food

Good Times

Good Friends

See you at the PARTY!

W9JXP

The Call W9JXP is back on the air. This is the club call of the Indiana School for the Blind Amateur Radio Club. There are presently 15 members, each a Novice license. They are all working toward their upgrade. Richard Heck, WB9WTX is the club trustee. Listen for the call W9JXP on the air and work it each time you get a chance.

The Club Address is:
Indiana School for the Blind
Ham Radio Club
Box 61
7725 N. College Ave.
Indianapolis, IN 46240.

This came from a letter received from the students of W9JXP



SMALL TALK

1983 is about over and we have selected a new group of officers in T.A.R.S. Congratulations to Jim (KA9KRE) the new president; Mike (W9KXP) the vice-president; Elvin (WB9VSQ) will remain as the secretary; while Joyce Spencer (K9CPE) is the new treasurer; her husband Bill (WD9HUK) was reelected as a director. Other new directors are Blanche (KA9EIV) & Charlie Sartore (N9DYE).

Remaining directors are Harold (N9DEO), Charlie (WB9NQD), & Mike (N9DEV). With this group I am confident that 1984 will be a banner year for T.A.R.S.

I would like to thank those who served with me this year. A special thanks to Hal (W9FNN) hamfest chairman; with good help and money to spend it is easy b being president.

This column represents a first in the history of "Sparks". It was electronically mailed to the Editor via the N9APA MSO. Some day "Sparks" may only exist electronically. (editors Note) then the pony express could not have all the fun)

I hope you have made your Christmas Party Reservations all money taken in will go for Gifts, satisfaction guaranteed. This is the last column titled "Small Talk" perhaps next month it will be "Shop Taulk" think about it.

Seasons Greetings

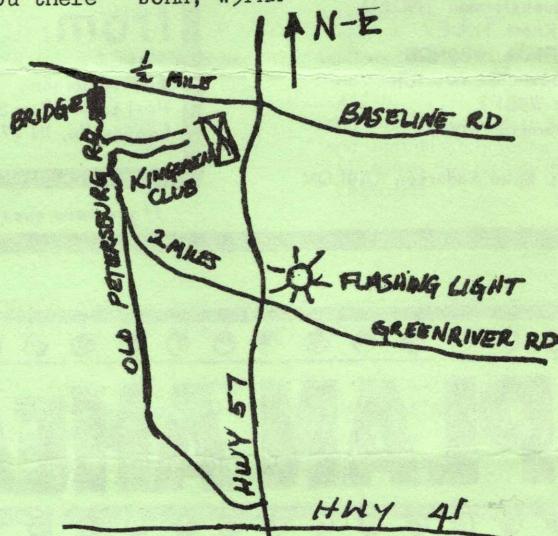
John W9FHA



Lost, Confused, Wandering Indiana, Where is the Party...

The Kingsmen's Club is located off of Baseline and Old Petersburg Road 2 Miles North of the flashing yellow light on Highway 57 in Daylight. Proceed North on Highway 57 2 miles past the flashing yellow light in Daylight and turn to the West (Left) onto Baseline Road.. Take an immediate Left onto Old Petersburg road and you are there... Talk in on 147.15/75 will be available.

See you there John, W9FHA



Christmas Party Reservations should be sent to

Blanche Elpers / KA9EIV
840 Herndon Drive
Evansville, IN 47710

Name _____ Call _____

I will need _____ Dinner Reservations for the TARS Christmas Party.

Enclosed find \$ _____ \$5.00 Adults \$2.00 Children *

* Children not eligible for prize drawings.

RESERVATIONS MUST BE IN TO BLANCHE BY DECEMBER 3, 1983.

SPARKS DEADLINES

JANUARY ISSUE

December 30, 1983

FEBRUARY ISSUE

January 27, 1983



STS-9

NASA announced Nov. 26 that STS-9 would be launched on Nov. 28, 1983 at 16:00 UTC. Although many of the new experiments have been reduced in scope, STS-9 will remain a full nine day Mission. At this writing it is believed that Dr. Garriott's operating schedule will not be effected. In fact due to lessening experiments more operating time may be available. W1AW will be your most reliable, most up

to date source for information on changes in the schedule. W1AW will operate in the following modes: phone on the hour; cw on the half hour and RTTY on the quarter hour. ARR: HQ. staffers KBLN and KH6WZ will be at the Johnson Space Center in Houston relaying instantly to W1AW any changes in the mission. Other sources of news are Electra Bearcat (1-800-SCANNER) editor note this is a free call.

Westlink's special STS-9 number (213-465-1500) and ARRL's Ham-in-Space Infor Line (203-666-0688) W1AW radio reports will be the most up to the minute news and it is free... See Nov. QST for frequencies and modes of operation for W1AW.

So far the news of STS-9 is good. was launched very successfully this morning 11/28/83. no further details are available at press time. First transmissions for Indiana will be Wednesday 11/30/83 at approximately 8:00 to 10:00 AM. on 145.55 MHz.

Packet Radio MSOs

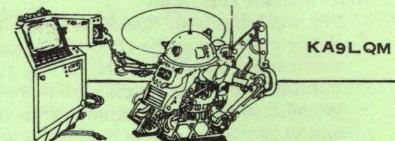
Q. How does the FCC classify packet-radio systems?

A. Section 97.69 of the Rules says that "digital codes may be used for such communications as (but not limited to) radio teleprinter, facsimile, television, communications to control amateur radio stations models and other objects, transference of computer programs or direct computer-to-computer communications, and communications in various types of data networks (including so-called 'packet switching' systems ...)" However, the FCC has no special rules for the operation of packet systems. These systems can fall into different categories of operation. If the system "retransmits automatically the radio signals of other amateur radio stations," then it is in repeater operation and must observe the rules that apply to repeaters. If the packet system is not in repeater operation (as in cases where the control operator manually directs the retransmission of other amateurs' radio signals, or where simple one-to-one communication occurs), it simply must comply with the general rules covering all Amateur Radio operation.

Q. What are MSOs? Are they legal?

A. MSO is an abbreviation for message storage operation, which is a trade name of HAL Communications Corp. It is a type of CBMS (computer-based message system) that typically operates in the hf bands for storage of messages by one station and retrieval by another station. Above 52 MHz, some CBMS stations also operate under the repeater rules. Outside of the repeater subbands (including the hf bands), CBMS stations must be operated in the subbands designated for F1 emission and the control operator must have positive control over the CBMS station.

[Note: Questions appearing in this column are typical of those frequently asked of the FCC and other agencies. Answers, prepared at ARRL, have been reviewed by the FCC's Personal Radio Branch for agreement with current FCC Interpretations and policy. Numbers in parentheses refer to specific sections of the FCC rules.]



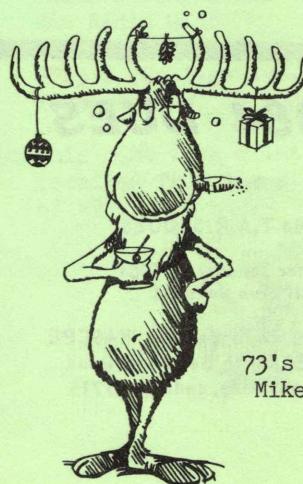
This year is gone, hope to see everyone at the Annual T.A.R.S. Christmas Party. We are having Turkey, Dressing and all the trimmings in addition to Cake for Blanche. Great prizes. You will be sorry if you don't put Friday December 9th. down on you must do list.

Starting in January I would like to have a few regular feature column's in "Sparks" How about a column for the YL's and XYL's in the group. Construction Articles have been missing this year. A regular Computer Column will be starting as well as information on RTTY. Thanks to Dan and the Gang who made the N9APA MSO a reality. IT IS BEAUTAMUS??? you will have to log into the MSO for your Ham Radio Dictionary to find BEAUTAMUS. NO RTTY Terminal, give up and call Rick (WB9SAN) for the daffy-nition. We are lucky to have a State of the Art Mailbox in operation in the Tri-State Area. It is very useful Try it you'll like it.

Will have a photographer at the Christmas Party so we can blackmail everyone who shows up into writing for "Sparks".

73's

KA9LQM



MSO

MSO Mailbox Features:

The MSO mode of operation allows users to read, write, and delete messages in the DS3100 memory through the radio communications link. The mailbox is activated when the external user transmits the proper access word to the DS3100. This access word or command may be programmed by the DS3100 operator to be any 10 character sequence. After the proper access code word is received, the external user may then send a number of fixed format commands to instruct the DS3100 to store a file, read a file, delete a file, list a directory of the files stored, or transmit help or test messages. A printer connected to the DS3100 may also be turned on or off by the external user; two additional transistor switches may also be controlled by MSO commands. Mailbox commands may also be entered by the local operator at the DS3100 keyboard without activating the transmitter.

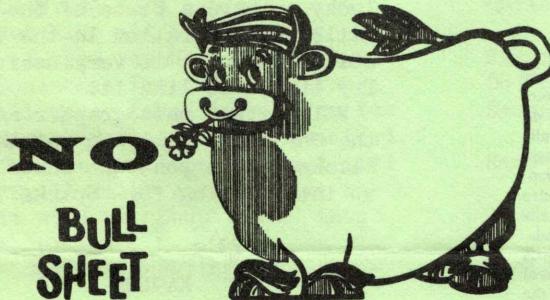
When a file is stored in the MPT3100 memory, its name and time of storage are placed in the directory listing. Two different passwords may be assigned to each file; one provides delete protection and the other restricts access for reading a file. If no password is specified, the file may be read or deleted by any user. A listing of the passwords for a file is not available to external users but is displayed for the local DS3100 operator.

MSO MAILBOX COMMANDS

- DELETE [filename] Deletes specified file
- DIR Transmits directory of current files
- DIR [filematch] Transmits directory listing for only file names that include characters specified in [filematch]
- ENDFILE Indicates the end of a file being written
- EXIT Terminates mailbox mode
- FILEHELP Shows format of file commands
- HELP Shows list and description of MSO Commands
- KY1ON Turn on switch KY1
- KY1OFF Turn off switch KY1
- KY2ON Turn on switch KY2
- KY2OFF Turn off switch KY2
- PRINTON Turn printer on (KY3)
- PRINTOFF Turn printer off (KY3)
- QBF Send two lines of "QUICK BROWN FOX..."
- READ [filename] Send contents of specified file
- RYS Send two lines of 32 "RY" (U* in ASCII)
- SDIR Send short-form directory listing
- SDIR [filematch] Send short directory listing for only file names that include [filematch] characters

Important!! a period must precede any command and a line feed or carriage return must follow each command. for example to see short form directory type:

.SDIR + 1 linefeed or carriage return Also MSO is set up for 110 ASCII ONLY if you try to enter system with no luck, restart the MSO with ".MSON9APA" Help is available with ".HELP" or ".FILEHELP" See MSO Commands above for more information.



1984 DUES

1984 T.A.R.S. DUES

After January 1, 1984
Mail club dues to:

JOYCE SPENCER, KA9CPE
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